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CHROMA KEY TECHNOLOGY FOR CREATING A MASTERPIECE

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Most people love watching fantastic movies with incredible video effects. Old school movies used real bangs, shots, falls as effects, but time passed and these methods became more and more dangerous because of viewer's inquiries. People always want to see a more entertaining film than they saw yesterday, but the progress does not stand still so nowadays computers help modern filmmakers do mind-blowing things. The main thing that provides us with unreal magic or fantastic worlds is the Chroma key (called Green Screen).

Chroma key is a technology that combine more than two images (frames) in one composition, i.e. colour keying (or key-projection), that is wodely used on television and in filmmaking. While filming, the subject is placed on a solid coloured background. By framing the subject with the background while recording the scene you can place any image instead of the background. Furthemore, in everyday life the rear screen, against the background of which the scene is filmed, is called a chromakey.

The rear screen is a one-colour background (a piece of fabric or a special sheet), which is located behind the actors and subjects during the filming process. With the help of Chroma key technology, the coloured background is replaced with any image during filming or editing on another footage (video-materials).

The most common colours used in keying are green and blue (cyan) because these colours do not appear in human skin tones. However, almost any colour can be used, including white and black. The most popular background colour for combined shooting in filmmaking is green (which gave the technology the name "Green screen"), for television programs a blue background ("Blue screen") is often used, although the colour of the key screen depends on the task set by the director and the characteristics of the equipment on which key-projection is performed [1].

The basis of keying technology (rear projection) is to analyze and separate a certain colour from the main image and replace it with any image by means of special software.

For implementing such a technology at home, you only need a bright background and video editing software that supports “keying”. For example, Adobe After Effects, Sony Vegas Adobe Premiere Pro on Windows or iMovie and Final Cut Pro, on Mac.

It is generally accepted that Chroma key is a purely green screen in the background, but it should be noted that the colour of the background, in essence, does not matter if it is bright and does not find its counterparts in the colour of objects in the frame. In simple terms, when keying, holes and gaps will appear inside of you if you are wearing the clothes, that is the same colour as your background one, and bright green is chosen as the base colour simply because it is rarely found among the colours of objects in the frame.

The blue background was generally used by old filmmakers [2].

A green background is mainly used outdoors, in such shots where the sky is visible. Digital cameras perceive green tones better and record them with less noise. A red background is used for scenes where objects rather than people are filmed, as red skin tones do not allow to use such a background. When both blue and green colours are present in the frame, you have to use less traditional shades.

Due to the use of a chroma key, you can significantly reduce the cost of the production process, as well as create objects that cannot exist in reality. At the moment, there are many solutions to create a chroma key using templates.

But Chroma Key technology has several disadvantages.

1. If a person’s clothing has a colour similar to the background colour, then the person begins to “shine through” (“glow”). Therefore, when choosing an outfit for an actor or TV presenter, colours that match the background are avoided. This problem can be solved by using masks in the video editor software (manually mark areas of the image where you do not need to replace the background colour).

2. Objects that reflect light well (for example, polished plastic or iron) begin to

“show through” due to the reflection on their surface of the surrounding space (including the chromakey itself). Unlike “shining through” clothing items, it is much more difficult to fix this problem. Reflection of the environment is a natural property of many surfaces, therefore even manual removal of reflections (which already requires a lot of effort) still leads to a distortion of the naturalistic scene – objects in the frame look unnatural. Correcting this problem requires a lot of manual labour, visual effects specialists have to manually create reflections in the post-processing stage of the film making, and therefore the final cost of the frame rises significantly [3]. Because of this, in scenes using a chroma key, objects with reflective surfaces are minimized.

3. One of the most important tasks when shooting with a chroma key is to properly illuminate the background. The light should be placed in such a way as to avoid shadows from the object in the background. This requirement greatly complicates the building of the light composition of the scene and makes it difficult to use light and shade artistically on the set.

Professionals are increasingly highlighting several practical tips to achieve harmony between superposition and reality:

- position the object far enough from the background to minimize background shadows and background reflections on the subject;
- when setting the light, do not forget to light the background brightly and without gradient;
- if you are not creating a background from scratch, select it before shooting and match the direction of light and shadow in the real frame to create a full effect of presence, and also – you can read about the basics of staging light;
- add variety, even the “flattest” picture (for example, an interview) will look more interesting if the objects in the composition are not only in the background.

We'd like to conclude, giving the main points for using this technology in your videos at all:

- chroma key will save you time and money on scenery creation, but only at the shooting stage, because the frames with chroma key require careful digital

processing;

- chroma key will allow you to move to any place and create any effect, send the character from the coloured background into space and superimpose explosions using the newly created space composition with the character as the background;

- chroma key is a big leap in quality and a great tool for drawing the attention of the viewer to your video.

References

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- [3] Top 3 benefits of chroma key editing. [Online]. Access: <https://www.cyberlink.com/learning/powerdirector-video-editing-software/2945/top-3-benefits-of-chroma-key-editing>

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ОСОБЛИВОСТІ ВИКОРИСТАННЯ ГІДРОПРИВОДІВ ДЛЯ МОБІЛЬНИХ ПІДЙОМНИКІВ З РОБОЧИМИ ПЛАТФОРМАМИ

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Основною особливістю сучасних мобільних підйомників з робочими платформами (МПП), оснащених об’ємним гідроприводом (ОГП) для реалізації режимів робочих органів «підйом-опускання», «плавання», «переміщення» і «пересування власного шасі МПП», є застосування багатозолотникових гідророзподільників. Незалежно від типу насоса, гідроциліндра, гідромотора або поворотного гідродвигуна, гідророзподільники виконують функції пуску, реверсування і гальмування робочих органів.